CHAPTER 2. TRAINING PROGRAMS AND AIRMAN QUALIFICATIONS

SECTION 4. FLIGHTCREW GENERAL EMERGENCY TRAINING CURRICULUM SEGMENTS

391. GENERAL. There are two types of emergency training that Federal Aviation Regulations (FAR) Parts 121 and 135 operators must provide to flight crewmembers. One type is "aircraft-specific." This type of emergency training includes instruction and practice in emergency and abnormal procedures associated with aircraft systems, structural design, and operational characteristics. This training provides pilots and flight engineers with the knowledge and skills necessary to perform the emergency or abnormal procedures specified in the approved airplane flight manual (AFM) (or those AFM procedures incorporated in the operator's aircraft operating manual). Examples of such procedures are those used when engine, landing gear, flight control, and/or pressurization problems occur. "Aircraft-specific" also includes training on the location of specific items of emergency equipment on the aircraft, such as fire extinguishers, oxygen bottles, liferafts, life vests and first aid kits. Aircraft-specific training must be included in the aircraft ground and flight training curriculum segments as described in sections 4 and 5 of this chapter. The other type of emergency training is referred to as "general emergency training." General emergency training is required for crewmembers on each item specified in FAR 121.417 and 135.331. This section provides direction and guidance on the content, methods of presentation, evaluation, and approval of flightcrew general emergency training.

A. Two distinct subject areas of training are required in the conduct of general emergency training. These areas of training are "emergency drill" training and "emergency situation" training. The general emergency training curriculum segment must contain training modules that provide for training in both subject areas.

NOTE: "Emergency drill" training provides instruction and practice in the actual use of certain items of emergency equipment, such as fire extinguishers, life vests, oxygen bottles, and first aid equipment. OTE: The discharge of Halon extinguishing agents during firefighting drills is not appropriate unless a training facility is used that is specifically designed to prevent harm to the environment from the discharged Halon. When such facilities are not used, other fire extinguishing agents that are not damaging to the environment should be used during the drills.

(1) "Emergency situation" training consists of instruction on the factors involved, as well as the procedures to be followed, when emergency situations occur. Examples include passenger evacuations, ditching, rapid decompressions, aircraft fires, and persons needing first aid.

B. The training modules for general emergency training must address the type of operation performed by an operator. For example, if a company operates aircraft above 25,000 feet, crewmembers must receive instruction in subjects such as respiration, hypoxia, decompression sickness, and any related procedures. As another example, a company that does not conduct extended-overwater operations does not need to conduct training in the use of liferafts.

392. JOINT PILOT/FLIGHT ATTENDANT EVACUATION TRAINING.

A. Background.

(1) During the study, the Safety Board asked flight crews who had participated in real, actual evacuations that received detailed investigations what changes could be implemented to improve emergency evacuation of passengers. Four flight crewmembers mentioned joint training with flight attendants. In addition, two flight attendants recommended joint training with the flight crew on evacuation procedures. Although many crewmembers had participated in joint crew resource management (CRM) training, a much smaller percentage indicated that it included joint evacuation drills. With NTSB recommendation A-92-74 and A-92-77 the NTSB recommended joint evacuation and/or wet ditching drill training and joint CRM

training that included group exercises to improve crewmember communication and coordination.

(2) The Federal Aviation Administration (FAA) agreed with the intent of these safety recommendations. On January 3, 1995, the FAA issued Advisory Circular 120-51C which states that flight attendants should conduct CRM training with flight crews covering shared issues such as evacuations and ditching. In addition, on February 12, 1995, the FAA issued Flight Standards Information Bulletin 95-04, "Emergency Evacuation and Ditching Drills," which expired on February 29, 1996. The bulletin directed Principal Operations Inspectors (POI) to ensure that their assigned certificates are aware of the performance benefits that result when flight crews and flight attendants perform emergency evacuation and ditching drills together.

B. Policy. Giving crewmembers the opportunity to experience crew coordination and team work during required training drills is highly desirable. This is not always possible because of the difference in the numbers, the training schedules and the training facilities of flight attendants and flight crewmembers. Regardless of these challenges, airlines have used a variety of methods to ensure that crewmembers understand the procedures and actions of other crewmembers during emergency situations. These methods have included the use of videos which show the procedures for both flight crew and flight attendants during a simulated emergency situation and the timeframes required to complete those procedures. The simulation is especially helpful when followed by a discussion in which crewmembers are encouraged to discuss the role of fellow crewmembers.

(1) The FAA recognizes the value of all activities that encourage communication and coordination between crewmembers. This would include joint CRM training, joint evacuation training, schedules that allow pilots and flight attendants to remain together as a crew for the duration of their trip sequence, preflight briefings that occur between the captain and the flight attendant crew, and coordination between flight crew and flight attendant training departments to ensure standardization of procedures. As evidenced in previous guidance that the FAA has published, these activities are strongly encouraged and air carriers routinely integrate one or more of these items into their operational procedures or training programs.

(2) POIs and Cabin Safety Inspectors (if applicable) should ensure that their assigned certificate holders are aware of the desirability of flight crew and flight attendants performing emergency evacuation and ditching drills together. Further, they should ensure that when this is not possible, air carriers are aware of the desirability of training programs that include information addressing the roles of other crewmembers during emergency evacuations and ditchings.

393. GENERAL EMERGENCY TRAINING CURRICULUM SEGMENTS.

A. FAR Part 121. All FAR Part 121 operators must develop and obtain approval of a general emergency training curriculum segment for the initial new-hire category of training. FAR Part 121 operators using both Group I (propeller-driven) and Group II (turbojet) aircraft must develop a general emergency training curriculum segment for flight crewmembers required to receive initial equipment training on an aircraft in a different group for the first time. FAR Part 121 operators may elect (or principal operations inspectors (POI) may require them) to develop a separate general emergency training curriculum segment for flight crewmembers required to receive initial equipment training on an aircraft in the same group. In this situation, the decision to develop a separate general emergency training curriculum segment should be based on the complexity of the operation, the extent of the differences in the flight regimes of the aircraft involved, and the extent of differences in the emergency equipment and procedures associated with the aircraft involved.

B. FAR Part 135. All FAR Part 135 operators must develop and obtain approval of a general emergency training curriculum segment for the initial new-hire category of training. FAR Part 135 operators may elect (or POI's may require them) to develop a separate general emergency curriculum segment for flight crewmembers required to receive the initial equipment category of training. In this situation, the decision to develop a separate general emergency training curriculum segment should be based on the complexity of the operation, the extent of the differences in the flight regimes of the aircraft involved, and the extent of differences in the emergency equipment and procedures associated with the aircraft involved. For example, an operator who operates both reciprocating-powered and turbojet-powered aircraft may need to

develop separate general emergency training curriculum segments for incorporation into the initial equipment category of training appropriate for these types of aircraft.

C. Transition and Upgrade Training--FAR Parts 121 and 135. There is not a requirement for a separate general emergency curriculum segment for the transition and upgrade categories of training. For these categories of training, flight crewmembers will have previously received the appropriate general emergency training during initial new-hire training or, when appropriate, initial equipment training. Aircraft-specific emergency training must be included in the transition or upgrade aircraft ground and flight training curriculum segments.

D. Recurrent Training--FAR Parts 121 and 135. FAR Parts 121 and 135 operators must develop and obtain approval of a separate general emergency training curriculum segment for the recurrent category of training. Usually it will be appropriate to have two general emergency curriculum segments, one that reflects a 12-month cycle of emergency situation training and another that reflects a 24-month cycle of emergency drill (actual hands-on) training. See paragraph 395. It is acceptable, however, to incorporate the emergency drill "hands-on" training into a single curriculum segment provided it clearly requires that flight crewmembers receive the emergency drill (hands-on) training at least once each 24 months.

E. Requalification Training--FAR Parts 121 and 135. . Whether a general emergency curriculum segment is required for the requalification category of training is dependent on the purpose of the requalification training. In general, if the purpose of the requalification training is to requalify flight crewmembers who have been unqualified for more than 1 year, a general emergency training curriculum segment should be required.

395. RECURRENT GENERAL EMERGENCY TRAINING. FAR Parts 121 and 135 operators are required to conduct recurrent general emergency training. This curriculum segment is separate from the aircraft ground recurrent training curriculum segment. Recurrent general emergency training consists of "emergency situation" and "emergency drill" training modules.

A. Recurrent general emergency training for FAR Parts 121 and 135 operators consists of all the items contained in FAR § 121.417 and FAR § 135.331 respectively. This training must be conducted every 12 months, usually at the same time that aircraft ground recurrent training is conducted.

B. The emergency situation training modules that are part of the recurrent general emergency training curriculum segment must include at least the following:

- Rapid decompression (if applicable)
- In-flight fire (or on-the-surface) and smoke control procedures
- Ditching and evacuation situations
- Illness, injury, the proper use of first aid equipment, and other abnormal situations involving passengers or crewmembers

C. The emergency drill training modules, which require the crewmember to actually operate the items of emergency equipment (hands-on), must be conducted at least every 24 months. During the alternate 12-month periods, the emergency drill training may be accomplished by pictorial presentation or demonstration. The emergency drill training modules that are part of the recurrent general emergency training curriculum segment must include at least the following:

- Operation of emergency exits (such as floor-level, overwing, and tail cone) in the normal and emergency modes
- Operation of each type of hand-held fire extinguisher
- Operation of each type of emergency oxygen system
- Donning, use, and inflation of life preservers and other flotation devices (if applicable)
- Ditching procedures (if applicable), including cockpit preparation, crew coordination, passenger briefing, cabin preparation, the use of life lines, and boarding of passengers and crew into a liferaft or slideraft, as appropriate

D. The following illustration serves to clarify the chronological order of recurrent general emergency training requirements:

TYPE OF RECURRENT GENERAL EMERGENCY TRAINING REQUIRED	MONTHS SINCE FIRST EMERGENCY TRAINING CURRICULUM SEGMENT WAS COMPLETED			
	12 MONTHS	24 MONTHS	36 MONTHS	48 MONTHS
Emergency Situation Training	X	X	X	X
Emergency Drill (either hands-on or pictorial presentation/demo)	X	X	X	X
Emergency Drill (hands-on required)		X		X

397. GENERAL EMERGENCY TRAINING MODULES.

A. A general emergency training curriculum segment must include as many training modules as necessary to ensure appropriate training. Each module outline must provide at least the following information:

- A descriptive title of the training module
- A list of the related elements or events that will be presented during instruction on the module

B. The training module outline must contain sufficient elements or events to ensure that a student will receive training on the emergency equipment and procedures common to all of the operator's aircraft and the type of operation being conducted.

C. It is unnecessary to include detailed descriptions of each element within a training module outline. Such detailed descriptions are appropriate when included in the operator's courseware, such as lesson plans. During the approval process, the POI should review courseware as necessary to ensure that the scope and depth of the training modules are adequate. An example of one of the many acceptable methods of presenting a general emergency training module outline follows:

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3. AIRCRAFT FIRES
(a) Principles of combustion and classes of fires
(b) Toxic fumes and chemical irritants
(c) Use of Halon, CO_2, and water extinguishers
(d) Lavatory fires
(e) Smoke masks and goggles

FYI: In the preceding illustration, such items as engine fire procedures, electrical fire procedures, and the location of each fire extinguisher are intentionally not included. These elements or events are included in the aircraft ground and flight training curriculum segments.

D. The following example illustrates the interrelationship of training modules in the flight crewmember general emergency training curriculum segment:

F. Heart attack and pregnancy situations Ground Evacuation.

- Aircraft configuration
- Directing passenger flow
- Blocked or jammed exit procedures
- Fuel spills and other ground hazards
- Handicapped persons

G. Ditching.

- Cockpit and cabin preparation
- Passenger briefing
- Crew coordination
- Primary swells, secondary swells, and sea conditions
- Ditching heading and water landings
- Ditching at night

H. Rapid Decompression.

- Respiration
- Hypoxia, hypothermia, hyperventilation
- Time of useful consciousness
- Gas expansion/bubble formation
- Physical phenomena and actual incidents

I. Previous aircraft accidents/incidents.

- NTSB accident report reviews
- Human factors/considerations
- NASA reporting system

J. Crewmember incapacitation.

- Company procedures
- Reporting requirements (NTSB)
- Interference with crewmembers

K. Hijacking and Other Unusual Situations.

- Hijack procedures
- Bomb threat procedures
- Security coordinator responsibilities
- In-flight intercept signals and procedures

406. SITUATIONS REQUIRING EMERGENCY EVACUATIONS.

A. Background.

(1) In the study, the Safety Board examined what situations would cause a flight crew to require an emergency evacuation, according to their company procedures. The most frequent event leading to an evacuation was an engine fire, accounting for 18 (39 percent) of the 46 evacuations included in the study cases. At some air carriers, checklist procedures direct the flight crew to initiate or consider ground evacuation procedures for emergency landing, fire (engine, Auxiliary Power Unit (APU), avionics, and cargo), smoke (in cabin equipment, in air conditioning, and smoke removal), abnormal landing gear, ditching, and aircraft sabotage. Other air carriers, however, direct flight crews to initiate or consider evacuation only for gear-up landings, ditchings, or forced landings.

(2) Based on this information, the Safety Board concluded that pilots are not receiving consistent guidance, particularly in flight operations and safety manuals, on when to evacuate an airplane. The Safety Board believes that the Federal Aviation Administration (FAA) should require flight operations manuals and safety manuals to include in abnormal and emergency procedures checklists, a checklist item that directs flight crews to initiate or consider emergency evacuation in all emergencies that could reasonably require an airplane evacuation (for example, a cabin fire or an engine fire).

B. Policy. Air carriers should evaluate the guidance and training that is given to their flight crews regarding a crew's decision to initiate or consider an emergency evacuation and ensure that it addresses the majority of situations for which an emergency evacuation may be warranted, including smoke or fire in the cabin. In addition, each carrier should consider a checklist item that directs flight crews to initiate or consider emergency evacuation in all emergencies that could reasonably require an airplane evacuation.

407. EMERGENCY DRILL TRAINING MODULES. The area of a general emergency training curriculum segment referred to as emergency drill training provides instruction, demonstration, and practice in the actual operation of certain items of emergency equipment. Examples of recommended subject area are as follows:

A. Hand-Held Fire Extinguishers.

- Inspection tags, dates, and proper charge levels
- Removal and stowage of extinguishers
- Actual discharge of each type of extinguisher

- Maintenance procedures and minimum equipment list (MEL)

B. Portable Oxygen Systems.

- Inspection tags, dates, and pressures
- Removal and stowage of oxygen bottles
- Actual operation of each type of bottle and each type of mask

C. Emergency Exits and Slides.

- Actual operation (open and close) of each exit in the normal and emergency modes
- Instruction on slide or slideraft deployment, transfer from one door to another, and detachment from the aircraft (or training device) of each type of slide or slideraft (if applicable)
- Actual use of slide or slideraft (This requirement needs to be accomplished only once during initial new-hire or initial equipment training.)

D. Ditching Equipment (if applicable).

- Actual donning, use, and inflation of individual flotation means (life preservers)
- Instruction on liferaft removal from the aircraft and inflation of each type of liferaft
- Instruction on the use of life lines
- Actual boarding of a liferaft or slideraft
- Instruction on survival equipment

408. PLANNED EMERGENCY BRIEFINGS.

A. Background. During the study, the Safety Board reviewed both planned and unplanned evacuations. The majority of cases (31) in the study were reported to be unplanned evacuations and 14 were carried out following crew planning for a possible evacuation. For the planned evacuations, the amount of planning varied from case to case. Prior to landing in an A-320 that had an unsafe nosegear, the flight attendants completed a comprehensive preparation for landing that included relocating the passengers and a detailed passenger briefing to prepare them for the evacuation. No passengers received injuries during the successful evacuation. In another case, passengers were informed that a maintenance problem had occurred and the airplane would be returning to the airport. Flight attendants calmed and reassured the passengers but did not prepare the cabin for an emergency evacuation. In this case, 11 passengers sustained minor injuries.

(1) Planning for evacuations involves more that just keeping passengers calm. Reviewing brace positions improves the chance that passengers will be properly braced for the emergency landing. Planned evacuations also allow the flight attendants to inform the passengers of what to expect, thereby avoiding surprises that could possibly delay the evacuation. For example, passengers who were flying on a Beech 1900 reported that they were surprised that there were no slides at the exits.

(2) Inadequate time to prepare, no procedures for abbreviated briefings, and lack of communication from the flight crew regarding the possibility of an evacuation prevented adequate passenger briefings in several cases studied.

B. Policy. Passengers who are informed and briefed regarding the possibility of an evacuation are better prepared to handle an evacuation, should one occur. Air carriers should ensure that they have procedures in place to encourage communication from the flight crew to the flight attendants regarding the possibility of an evacuation. In addition, air carriers should have procedures in place to ensure that passengers are provided with precautionary briefings when flight crews anticipate an eventual evacuation.

(1) Further, air carriers should develop procedures that are designed to accommodate abbreviated timeframes for cabin preparation for a planned evacuation or ditching. They should establish guidance and procedures for their flight attendants that specifically address reduced timeframes for cabin preparation and give their flight attendants the opportunity to practice these procedures during emergency training. These procedures should prioritize the cabin preparation tasks and critical elements of passenger information that can have a maximum positive effect on an evacuation and can be delivered in an abbreviated timeframe. For example, a review of the brace position and a reminder to review the safety information card for exit location and operation provides passengers with information that they can use to prepare for a safer and more efficient evacuation.

(2) There are several methods that an air carrier may employ to accomplish this. For example, an air carrier could have one announcement/checklist and structure it so that tasks are completed in order of importance. Even an abbreviated timeframe would allow the most critical tasks to be completed first. Another method could be to have two different announcements/checklists to accomplish specific time-

frames such as "over 10 minutes to prepare/under 10 minutes to prepare." Regardless of the method the air carrier chooses, Principal Operations Inspectors and Cabin Safety Inspectors (if applicable) should ensure that their assigned operators have procedures in place that are able to accommodate abbreviated timeframes for cabin preparation for an emergency landing.

409. RECURRENT GENERAL EMERGENCY TRAINING MODULES. Recurrent general emergency training consists of elements and events (in the form of training modules) that are selected by the operator and approved by the POI. These training modules consist of emergency situation training elements and emergency drill training events.

A. During alternate 12-month periods, when emergency drill (actual hands-on) training is not required, operators may use approved pictorial presentations or demonstrations. When approving pictorial presentations, the POI shall ensure that the presentation meets the following criteria:

F. APU Announcement.

(1) Background.

(a) One recommendation that came as the result of the National Transportation Safety Board (NTSB) study cited an evacuation that occurred during the boarding of a Boeing 727. In preparation for flight, the flight crew started the airplane's auxiliary power unit (APU). An orange flame appeared that extended from the APU exhaust port forward along the right side of the airplane as the APU "torched".

(b) The flame was noticeable in the cabin and several passengers screamed "fire" and began to evacuate the airplane via the left overwing exit and the jetway. The flight attendant in the rear of the airplane tried to stop the evacuation, but as the rush of passengers approached her, she decided that opening the tailcone exit was a more prudent action. Additionally, passengers also opened up the L2 door. When the flightcrew learned of the situation they issued an announcement over the public address system to remain seated. Control was finally reestablished in the cabin, but not before several passengers received injuries. The Board believes that the Federal Aviation Administration (FAA) should ensure that passengers are made aware of the possibility of APU torching just prior to use of the APU to preclude an unwarranted evacuation by passengers who only see "fire" outside the aircraft.

(2) *Policy.*The FAA agrees with the intent of this recommendation and issued Flight Standards Handbook Bulletin for Air Transportation 96-03 on 3/22/96 to address the issue of unwarranted evacuations. It requested Principal Operations Inspectors and their operators to re-emphasize emergency situation training modules and emergency evacuation procedures on unwarranted evacuations, to include, "Appropriate actions on aircraft which are equipped with Auxiliary Power Units (APU) which have a tendency to "torch".

(a) The best way to address the issue of unwarranted evacuations is to take proactive steps to ensure that they do not occur. APU torching is a known possible outcome of starting the APU. Passenger information regarding the possibility of APU torching would eliminate the panic and confusion that results from passengers simply seeing "fire" outside the aircraft and attempting to evacuate.

(b) Principal Operations Inspectors should inform their assigned certificate holders who operate Boeing 727s to include in their APU procedures instructions stating that during normal operations when passengers are on board, the flight crew make a PA announcement about the possibility of APU torching immediately prior to starting the APU.

445. GROUND TRAINING DEVICES.

A. Ground training devices are commonly used by operators in the conduct of aircraft ground training. The level of sophistication of these devices may range from a simple paper pictorial display to a static aircraft. They may include slide/tape presentations, computer-based instruction systems, aircraft system panels, models, mock-ups, flight training devices, flight simulators, and numerous other instructional delivery methods. POIs approve or accept each ground training device for use when granting initial or final approval of a ground training curriculum segment for the operator.

B. Ground training devices used for systems integration training must be individually evaluated by the POI. If these devices are also used for flight training (level 6 and 7 flight training devices or level A through D flight simulators) they must be evaluated and found satisfactory for flight training by the National Simulator Program Manager (NSPM).

447. EVALUATION OF GROUND TRAINING CURRICULUM SEGMENT OUTLINES FOR INITIAL APPROVAL. When evaluating an aircraft ground training curriculum segment outline an inspector must determine whether it meets the following criteria:

A. The training hours specified in each curriculum segment outline must be examined. Inspectors should not attempt to measure the quality or sufficiency of training by the amount of training hours alone. Adequacy of quality and sufficiency of training can only be determined by direct observation of training and testing (or checking) in progress or by examination of surveillance and investigation reports. The specified training hours, however, must be realistic in terms of the amount of time it will take to accomplish the training outlined in the curriculum segment. Any request and the appropriate justification for reductions to training hours must be submitted with

the initial proposal.

B. The curriculum segment outline contains appropriate training modules for the specific aircraft. The training modules should have sufficient elements or events to ensure that the quality and depth of training given in a particular subject area will be provided.

449. AIRCRAFT GROUND TRAINING CURRICULUM SEGMENT JOB AID.

A. The aircraft ground training curriculum segment job aid (Figure 3.2.5.1) is provided to assist the inspector in evaluating curriculum segments. The job aid is provided for guidance only and must not be construed as a mandatory or regulatory requirement. The job aid focuses on the three subject areas of this segment, general operational subjects, aircraft systems, and systems integration training. It serves as an aid for evaluating individual training modules.

B. When using the job aid, an inspector should make a side-by-side comparison of the operator's proposal to determine the following:

- Whether each subject is aircraft-specific in terms of description, company policy, and appropriate procedures
- Whether sufficient training module elements or events are listed to ensure the appropriate depth and scope of the material being presented

C. The job aid is organized with the training modules listed in the left column and evaluation criteria or remarks listed horizontally across the top. Inspectors may use the spaces within the matrix for items such as notes, comments, dates, or checkmarks. There are also blank columns and rows in the job aid in which inspectors may include additional training modules for systems unique to a particular aircraft and methods or procedures unique to a particular operation.

450. - 460. RESERVED

FIGURE 3.2.5.1
AIRCRAFT GROUND TRAINING MODULE JOB AID
SUBJECT AREA 1: GENERAL OPERATION SUBJECTS

	EVALUATION CRITERIA			
TRAINING SUBJECTS	Adequacy of Elements/Events	Adequacy of Courseware	Training Aids and Facilities	
Flight Control *				
Weight and Balance				
OpSpecs Authorizations/ Limitation				
Adverse Weather				
Flight Planning				
Aircraft Flight Manual				
Company Operations Manual				
Performance				

* Flight dispatch (Part 121 Domestic and Flag), flight release (Part 121 supplemental), or flight-locating (Part 135), as applicable.

FIGURE 3.2.5.1
AIRCRAFT GROUND TRAINING MODULE JOB AID (Cont'd)
SUBJECT AREA 2: AIRCRAFT SYSTEMS

	EVALUATION CRITERIA			
TRAINING SUBJECTS	Adequacy of Elements/Events	Adequacy of Courseware	Training Aids and Facilities	
Aircraft General				
Equipment and Furnishings				
Emergency Equipment				
Powerplants				
Electrical				
Pneumatic				
Air Conditioning a nd Pressurization				
Ice and Rain Protection				
APU				
Hydraulics				
Landing Gear and Brakes				
Flight Controls				
Fuel				
Communications Equipment				
Flight Instruments				
Navigation Equipment				
Autoflight				
Warning Systems				
Fire & Overheat Protection				
Oxygen				
Performance				

FIGURE 3.2.5.1
AIRCRAFT GROUND TRAINING MODULE JOB AID (Cont'd)
SUBJECT AREA 3: AIRCRAFT SYSTEMS INTEGRATION

	EVALUATION CRITERIA			
TRAINING SUBJECTS	Adequacy of Elements/Events	Adequacy of Courseware	Training Aids and Facilities	
Use of Checklist				
Cockpit Familiarization				
Preflight Planning				
Inflight Planning				
Use of Weather Radar/CRTs				
Navigation Systems				
Communication Systems				
Autoflight/ Flight Director				

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CHAPTER 14. FLIGHT ATTENDANT TRAINING AND QUALIFICATION PROGRAMS

SECTION 4. FLIGHT ATTENDANT GENERAL EMERGENCY TRAINING CURRICULUM SEGMENT

1973. GENERAL. This section provides direction and guidance on the content, evaluation, and approval of the flight attendant (F/A) general emergency training curriculum segments. For direction and guidance on aircraft-specific emergency training, see volume 3, chapter 14, section 5, "Flight Attendant Ground Training."

A. Emergency training requirements are specified by Federal Aviation Regulations (FAR) 121.417 and by FAR 135.331. These FAR may be divided into two types of training, which will be referred to in this handbook as "general" emergency training and "aircraft-specific" emergency training. General emergency training is training on those emergency items that are common to all aircraft. An example of general emergency training is training on fire extinguishers and firefighting procedures which would be applicable to all aircraft in the operator's fleet. Aircraft-specific emergency training is training on those items that are specific to each aircraft. An example of aircraft-specific emergency training is instruction on the location of emergency equipment and crewmember emergency assignments for a DC-9-30 aircraft.

B. The objective of general emergency training is to provide F/A's with the necessary knowledge concerning emergency equipment, situations, and procedures to ensure implementation of the correct actions in the event of an emergency.

C. When a certificate holder operates a number of different aircraft, it is to the certificate holder's advantage to obtain Federal Aviation Administration (FAA) approval for training curriculums that have distinct general emergency training and aircraft-specific emergency training segments. A certificate holder may, however, design a training curriculum that does not make a distinction between general emergency training and aircraft-specific training, such as when a certificate holder operates only one make and model of aircraft.

(1) General emergency training is required in the initial new-hire, recurrent, and requalification categories of training, but not in transition training. Only aircraft-specific emergency training is required in the transition category of training. A certificate holder may choose to limit initial new-hire training to a specific make and model of aircraft and then conduct transition training to qualify F/A's in each additional aircraft. When the F/A completes initial new-hire training, a training/checking month is established and general emergency training is not required again until the next recurrent training cycle.

(2) A certificate holder may choose to train its F/A's in all makes and models of aircraft in the operator's fleet during initial new-hire training. In this case, a general emergency training curriculum segment provides the basis for all aircraft-specific training to follow. If a general emergency training curriculum segment is not defined, the operator must duplicate this training on each specific aircraft type.

D. Wet Ditching Training and Drills.

(1) Water impact accidents, while they rarely occur, severely test the emergency procedure skills of all flight crewmembers. The chances of human survival from these types of accidents have been increased by advances in cabin design and better passenger safety awareness. However, improved aircrew emergency training is the major factor contributing to human survival.

(2) Principal operations inspectors (POI) should encourage their assigned air carriers to provide realistic environments for wet ditching training and drills. Training objectives should be accomplished in swimming pools or other safe aquatic environments using the flotation devices required to be on board the aircraft.

(3) Emergency equipment and drill training should be fully integrated into the operator's situational awareness training modules. POI's should ensure that inadvertent water impact accidents (ditching),

such as those occurring with little or no warning, are emphasized during wet ditching training.

1974. JOINT PILOT/FLIGHT ATTENDANT EVACUATION TRAINING.

A. Background.

(1) During the study, the Safety Board asked flight crews who had participated in real, actual evacuations that received detailed investigations what changes could be implemented to improve emergency evacuation of passengers. Four flight crewmembers mentioned joint training with flight attendants. In addition, two flight attendants recommended joint training with the flight crew on evacuation procedures. Although many crewmembers had participated in joint crew resource management (CRM) training, a much smaller percentage indicated that it included joint evacuation drills. With NTSB recommendation A-92-74 and A-92-77 the NTSB recommended joint evacuation and/or wet ditching drill training and joint CRM training that included group exercises to improve crewmember communication and coordination.

(2) The Federal Aviation Administration (FAA) agreed with the intent of these safety recommendations. On January 3, 1995, the FAA issued Advisory Circular 120-51C which states that flight attendants should conduct CRM training with flight crews covering shared issues such as evacuations and ditching. In addition, on February 12, 1995, the FAA issued Flight Standards Information Bulletin 95-04, "Emergency Evacuation and Ditching Drills," which expired on February 29, 1996. The bulletin directed Principal Operations Inspectors (POI) to ensure that their assigned certificates are aware of the performance benefits that result when flight crews and flight attendants perform emergency evacuation and ditching drills together.

B. Policy. Giving crewmembers the opportunity to experience crew coordination and team work during required training drills is highly desirable. This is not always possible because of the difference in the numbers, the training schedules and the training facilities of flight attendants and flight crewmembers. Regardless of these challenges, airlines have used a variety of methods to ensure that crewmembers understand the procedures and actions of other crewmembers during emergency situations. These methods have included the use of videos which show the procedures for both flight crew and flight attendants during a simulated emergency situation and the time frames required to complete those procedures. The simulation is especially helpful when followed by a discussion in which crewmembers are encouraged to discuss the role of fellow crewmembers.

(1) The FAA recognizes the value of all activities that encourage communication and coordination between crewmembers. This would include joint CRM training, joint evacuation training, schedules that allow pilots and flight attendants to remain together as a crew for the duration of their trip sequence, preflight briefings that occur between the captain and the flight attendant crew, and coordination between flight crew and flight attendant training departments to ensure standardization of procedures. As evidenced in previous guidance that the FAA has published, these activities are strongly encouraged and air carriers routinely integrate one or more of these items into their operational procedures or training programs.

(2) POIs and Cabin Safety Inspectors (if applicable) should ensure that their assigned certificate holders are aware of the desirability of flight crew and flight attendants performing emergency evacuation and ditching drills together. Further, they should ensure that when this is not possible, air carriers are aware of the desirability of training programs that include information addressing the roles of other crewmembers during emergency evacuations and ditchings.

1975. GENERAL EMERGENCY TRAINING SUBJECT AREAS. In the F/A general emergency training curriculum segment there are three distinct subject areas of training that are required in the conduct of general emergency training. These three subject areas, which need to be covered in the curriculum segment modules, are as follows: "emergency equipment" training, "emergency situation" training, and "emergency drill" training. Emergency equipment training consists of individual instruction, demonstration, and practice in the functions and operation of emergency equipment, such as fire extinguishers and oxygen bottles. Emergency situation training consists of instruction in the factors involved and the procedures to be followed when emergency situations occur, such as training on ground evacuations and in-flight medical emergencies. Emergency drill training provides an opportunity for F/A's to perform emergency procedures with hands-on practice in the actual operation of emergency equipment, such as a fire-fighting drill with the use of a fire extinguisher and protective breathing equipment (PBE).

NOTE: While emergency drills are always designated under the general emergency training curriculum segment, these drills can be taught as either general to all aircraft or as aircraft-specific. In addition, the training modules for general emergency training must cover the necessary training for the type of operation performed by the operator. For example, when an operator conducts extended overwater operations, the training modules must include training on the use of sliderafts or liferafts.

A. Emergency Equipment Training. FAR 121.417(b)(2) requires training on certain equipment. In addition to the required equipment, training should be conducted on any additional emergency equipment located on the operator's aircraft such as demo equipment, cardiopulmonary resuscitation (CPR) equipment, cockpit key, seat

belt extensions, and lavatory smoke detectors. Inspectors shall ensure that training modules cover the function and operation of at least the following emergency equipment:

- Equipment used in ditching and evacuation
- First aid equipment (including its proper use)
- Portable fire extinguishers (with emphasis on type of fire extinguisher to be used for different classes of fires)
- Emergency exits in the emergency mode with the evacuation slide/raft pack attached, if applicable (with training emphasis on the operation of the exits under adverse conditions)

B. Emergency Situation Training.

(1) The second subject area, emergency situation training, must, according to FAR 121.417(b)(1),(3), and (4); and FAR 121.417(e), include training modules that cover emergency procedures and coordination among crewmembers in at least the following emergency situations:

- Rapid decompression
- Fire in flight or on the surface, and smoke control procedures (with emphasis on electrical equipment and related circuit breakers found in cabin areas including all galleys, service centers, lifts, lavatories and movie screens)
- Ditching and other evacuations (including the evacuation of persons and their attendants, if any, who may need the assistance of another person to move expeditiously to an exit in the event of an emergency)
- Illness, injury, or other abnormal situations involving passengers or crewmembers (to include familiarization with the emergency medical kit)
- Hijacking and other unusual situations
- Review and discussion of previous aircraft accidents or incidents pertaining to actual emergency situations
- For crewmembers who serve in operations above 25,000 feet, instruction in respiration, hypoxia, duration of consciousness without supplemental oxygen at altitude, gas expansion, gas bubble formation, physical phenomena and incidents of decompression

(2) Emergency situation training modules may also include information on any additional unusual situations that could result in an emergency situation, such as passengers who may jeopardize aircraft or passenger safety, turbulence, blown tires, and engine/auxiliary power unit (APU) torching.

C. Emergency Drill Training.

(1) The third subject area, emergency drill training, must, according to FAR 121.417(c)(1)(2), include training modules that ensure crewmember accomplishment of these emergency drill requirements, as follows:

(a) The following onetime emergency drills must be performed by each crewmember during initial training: the PBE/firefighting drill and the emergency evacuation drill.

(b) The following additional emergency drills must be accomplished during initial training and once every 24 calendar months during recurrent training, with each crewmember performing the following drills while operating the appropriate equipment: the emergency exit drill, hand fire extinguisher drill, emergency oxygen system drill, flotation device drill, and the ditching drill (if applicable).

(c) The following additional emergency drills must be accomplished during initial training and once every 24 calendar months during recurrent training--with each crewmember observing the following drills: liferaft removal and inflation drill; slideraft transfer drill; slide or slideraft deployment, inflation, and detachment drill; emergency evacuation slide drill.

(2) Emergency drill training modules may also include any additional drills deemed necessary by the operator, such as a CPR equipment drill or a megaphone drill.

NOTE: For the required differences in FAR Part 135 for each of the three training subject areas, see FAR 135.331, "Crewmember Emergency Training."

D. One element of effective emergency training is to simulate realistic emergency situations by having participants actively involved in situational problem-solving activities. These types of activities provide students with the opportunity to practice emergency procedures in a controlled environment until proficiency is obtained. An example of a simulation for "emergency situation" training is one in which some F/A's prepare a "cabin" (classroom, mock-up, or actual aircraft) for a land evacuation, while others assume the roles of crewmembers and passengers. An example of a situation for emergency drill training is one in which F/A's perform after-impact commands and actions while opening an emergency exit (in the emergency mode) and directing the evacuation of passengers.

1976. FLIGHT ATTENDANT EVACUATION COMMAND.

A. Background. During the study, the Safety Board found that for all but two air carriers, the command that flight attendants use at floor level exits to assist in an evacu-

ation and to ensure rapid egress from the aircraft is "Jump" or "Jump and Slide." For one air carrier, the command is "Slide" and for another air carrier, the command is "Sit and Slide." The Board was not aware of any aircraft type being certificated using a "Sit and Slide" command and felt that the process of sitting to board the slide slows the flow at the exit location such that certification test success would be difficult if not impossible. The air carrier that uses the "Sit and Slide" command also has a rapid slide procedure that includes the command "Jump and Slide." However, the air carrier does not define when to use the rapid slide procedure and shows the "Sit and Slide" method on its safety information cards. The Board concluded that evacuations involving slide use could be delayed if passengers sit at exits before boarding a slide or if crew commands do not direct passengers how to get on a slide.

B. Policy. The purpose of emergency evacuation procedures are to effect a rapid egress from the aircraft of all passengers. Crewmember commands and passenger information, such as that contained graphically on the safety information card, that slow down the egress from the aircraft of all passengers are not consistent with this purpose.

- There may be some exits for which the command "Sit and Slide" is appropriate. For example, a 747-400 upper deck exit has a very high slide with a very steep angle to the ground. It would be appropriate to command passengers to "Sit" prior to using the slide. Another example would be commands that are used for special types of passengers, such as those who may be frail, blind or traveling with infants and small children. For the majority of floor level exits and for the majority of passengers, however, the command to "Sit" at the top of the slide prior to exiting the aircraft is not consistent with the objective for the most rapid egress possible. Principal Operations Inspectors and Cabin Safety Inspectors (if applicable), should review the commands used by their assigned certificate holders for slide evacuations to ensure that they are consistent with the intent to have passengers get out of the aircraft as quickly and safely as possible. Specifically, that air carriers should not use the command to "Sit" prior to using the all evacuation slides to exit the aircraft during an emergency evacuation, and passenger information cards should not show that passengers must sit at the top of all evacuation slides prior to egress from the aircraft

1977. ICONTENT OF F/A GENERAL EMERGENCY TRAINING CURRICULUM SEGMENT OUTLINE. A general emergency training curriculum segment outline must include appropriate modules of emergency equipment training, emergency situation training, and emergency drill training. The modules, elements, and events listed on the outline only have to contain enough detail to ensure that the FAR-required training is provided.

A. FAR 121.417(b) and FAR 135.331(b) specify that crewmembers must receive instruction in the function and operation of emergency "equipment" and the handling of emergency "situations." Emergency equipment training and emergency situation training are distinguished for the use of the building block approach to reinforce basic concepts. For example, emergency equipment training for the Halon fire extinguisher should provide training on the extinguisher's function and operation. Emergency situation training, however, should provide training on appropriate actions and commands to use when operating the Halon fire extinguisher in a particular firefighting situation.

B. FAR 121.417(c) and FAR 135.331(c) specify the emergency "drills" that crewmembers must perform and the equipment that must be operated during emergency training.

1979. GENERAL EMERGENCY TRAINING MODULES. A general emergency training curriculum segment must include as many training modules as necessary to ensure adequate training. Each training module outline must provide at least a descriptive title of the training module and a list of the related elements or events that are to be presented during instruction on the module.

A. The general emergency training module outline must contain sufficient elements or events to ensure that students will receive adequate training in the emergency equipment, emergency situation, and emergency drill subject areas. Operators do not have to include detailed descriptions of each element or event within a training module outline. Detailed descriptions are more appropriate when included in the operator's courseware. During the approval process, the POI should review courseware as necessary to ensure that the scope and depth of the training modules are adequate.

B. The training modules designated to fulfill the requirements of FAR 121.417 are contained in both the general emergency training curriculum segment and the aircraft ground training curriculum segment. Operators have flexibility in the arrangement of general emergency training modules as follows:

(1) The training modules required by the FAR for general emergency training must be included in the general emergency training curriculum segment outline and counted toward the hour requirement for this curriculum segment. The sequence of the actual training can be determined by the operator. For example, while a module on decompression must be contained in the general training curriculum segment outline, the operator may actually conduct training on decompression procedures immediately before or after conducting training on a related aircraft-specific train-

- Post-Crash Rescue: Role of F/A's
- Survival in Uninhabited Area: Group management; basic survival procedures on land

(6) Unwarranted Evacuation:

- Passenger- or Crew-Initiated: F/A readiness; assessing situation
- Crew Coordination: Method of communicating that an unwarranted evacuation is in progress
- Stopping the Evacuation: Commands; actions

(7) Illness or Injury:

- General Principles of Care: Effects of aircraft environment; crew medical responsibilities; crew coordination, including flightcrew notification; requesting and verification of medically qualified personnel; rules for administering medication; documentation and written reports; ground-to-air assistance; removal of ill or injured passengers
- In-flight Medical Emergencies/Incidents: Illness or injury symptom recognition and examination; attempt to obtain medical history; assessment of passenger; appropriate medical treatments; handling of passenger; aircraft limitations; crewmember incapacitation; apparent death in flight; review of contents and use of first aid equipment

(8) Abnormal Situations Involving Passengers or Crewmembers:

- Passenger Abuse of F/A: Crew coordination; recommended procedures
- Passengers Who Appear to be Under the Influence of Intoxicating Substances: Crew coordination; recommended procedures
- Passengers Who May Jeopardize Aircraft or Passenger Safety: Crew coordination; recommended procedures

(9) Hijacking/Bomb Threat:

- Hijacking: Specific company hijacking procedures; reinforcement of security training procedures; methods of communicating with other crewmembers when hijacking is threatened or in progress
- Bomb Threat: Specific company security procedures; reinforcement of security training procedures; crew coordination procedures; specific bomb search procedures; bomb handling and stabilization procedures for each aircraft

(10) Turbulence:

- Basic Action (Dependent on Severity of Turbulence): Flight crewmember notification procedures; communication procedures for securing passengers, crewmembers, cabin, galleys, serving carts
- Severe Turbulence (Anticipated or Unanticipated): Crew coordination procedures; appropriate actions
- Mild Turbulence (Anticipated or Unanticipated): Crew coordination procedures; appropriate actions

(11) Other Unusual Situations (Recommended but not Required):

- Blown Tires: F/A readiness
- Condensation: Passenger briefing; appropriate actions
- Engine Shutdown: Passenger briefing; appropriate actions
- Engine/APU Torching: Passenger briefing
- Fuel Dumping: Passenger briefing; appropriate actions
- Rejected Landing/Missed Approach/Rejected Takeoff: F/A readiness
- Malfunction of Lift Safety Interlock System: Immediate actions and appropriate procedures

(12) Previous Aircraft Accidents and Incidents:

- General: Types and major causes of accidents; NTSB recommendations; survivability factors, including crewmember and passenger preparation for impact; ability of aircraft to withstand impact; ability of crewmembers to perform assigned duties after impact; emphasis on crew coordination and communication as critical elements in emergency situations
- Accident/Incident Aftermath: Coping with survival

(13) Planned Evacuation Briefings.

(a) *Background.* During the study, the Safety Board reviewed both planned and unplanned evacuations. The majority of cases (31) in the study were reported to be unplanned evacuations and 14 were carried out following crew planning for a possible evacuation. For the planned evacuations, the amount of planning varied from case to case. Prior to landing in an A-320 that had an unsafe nosegear, the flight attendants completed a comprehensive preparation for landing that included relocating the passengers and a detailed passenger briefing to prepare them for the evacuation. No passengers received injuries during the successful evacuation. In another case, passengers were

informed that a maintenance problem had occurred and the airplane would be returning to the airport. Flight attendants calmed and reassured the passengers but did not prepare the cabin for an emergency evacuation. In this case, 11 passengers sustained minor injuries.

- Planning for evacuations involves more that just keeping passengers calm. Reviewing brace positions improves the chance that passengers will be properly braced for the emergency landing. Planned evacuations also allow the flight attendants to inform the passengers of what to expect, thereby avoiding surprises that could possibly delay the evacuation. For example, passengers who were flying on a Beech 1900 reported that they were surprised that there were no slides at the exits.

- Inadequate time to prepare, no procedures for abbreviated briefings, and lack of communication from the flight crew regarding the possibility of an evacuation prevented adequate passenger briefings in several cases studied.

(b) *Policy.* Passengers who are informed and briefed regarding the possibility of an evacuation are better prepared to handle an evacuation, should one occur. Air carriers should ensure that they have procedures in place to encourage communication from the flight crew to the flight attendants regarding the possibility of an evacuation. In addition, air carriers should have procedures in place to ensure that passengers are provided with precautionary briefings when flight crews anticipate an eventual evacuation.

- Further, air carriers should develop procedures that are designed to accommodate abbreviated timeframes for cabin preparation for a planned evacuation or ditching. They should establish guidance and procedures for their flight attendants that specifically address reduced timeframes for cabin preparation and give their flight attendants the opportunity to practice these procedures during emergency training. These procedures should prioritize the cabin preparation tasks and critical elements of passenger information that can have a maximum positive effect on an evacuation and can be delivered in an abbreviated timeframe. For example, a review of the brace position and a reminder to review the safety information card for exit location and operation provides passengers with information that they can use to prepare for a safer and more efficient evacuation.

- There are several methods that an air carrier may employ to accomplish this. For example, an air carrier could have one announcement/checklist and structure it so that tasks are completed in order of importance. Even an abbreviated timeframe would allow the most critical tasks to be completed first. Another method could be to have two different announcements/checklists to accomplish specific timeframes such as "over 10 minutes to prepare/under 10 minutes to prepare." Regardless of the method the air carrier chooses, Principal Operations Inspectors and Cabin Safety Inspectors (if applicable) should ensure that their assigned operators have procedures in place that are able to accommodate abbreviated timeframes for cabin preparation for an emergency landing.

1984. HANDLING OF CARRY-ON BAGGAGE DURING AN AIRCRAFT EVACUATION.

A. BACKGROUND. Typically, air carriers use two methods to instruct passengers not to take personal belongings during an evacuation. The first method is an indication on the safety briefing card that carry-on baggage should not be taken during an emergency evacuation. The second method is a flight attendant commanding all passengers to "leave everything" during an evacuation. Even with these methods in place, the NTSB reported that many of the passengers that were interviewed during their study were carrying at least one piece of carry-on baggage when they attempted to evacuate the airplane. The Safety Board believes that the Federal Aviation Administration (FAA) should develop advisory material to address ways to minimize the problems associated with carry-on baggage during evacuations.

B. POLICY. Passengers who attempt to retrieve and bring their carry-on baggage with them as they exit the aircraft have the potential to slow the evacuation, damage the escape slide and injure other passengers at the bottom of the slide. Flight attendants should be forceful and commanding as they instruct passengers to leave everything on the aircraft.

(1) During an emergency evacuation, when a passenger disregards a flight attendants command to leave everything on the aircraft and approaches an exit while carrying a piece of carry on baggage, flight attendants should be prepared to take specific actions. On July 24, 2000, the FAA issued Advisory Circular (AC) 121-29B, Carry-On Baggage. It states that operators are required to provide training to crewmembers regarding their approved program, which includes "the handling of carry on baggage during an emergency." To meet the intent of this guidance, procedures should be developed by the carrier to handle carry-on baggage during an evacuation, taught to flight

attendants as part of their approved training program, and practiced during evacuation drills.

(2) Airlines that have procedures currently in place to address the handling of carry-on baggage during an evacuation usually train flight attendants to take the bag and throw it to a specific area to mitigate the negative effects that it may have on the evacuation. This could include throwing it out of the aircraft forward or aft of the evacuation slide, throwing it back into the cabin into empty seats, etc. Procedures would have to take into consideration the flight attendant's location on the aircraft (floor level or overwing exit) as well as the hazards of piling up carry on baggage in front of another exit or the flight deck door, or throwing it down the slide on top of other passengers. Another consideration is the fact that a battle with a passenger over a piece of carry-on baggage may be more detrimental to the rapid egress of the aircraft than allowing the passenger to take it with them.

(3) Principal Operations Inspectors and Cabin Safety Inspectors (if applicable) should work with their assigned certificate holders to ensure that they have specific procedures in the appropriate crewmember manuals and training programs that address the handling of carry-on baggage during an emergency and provide their flight attendants with clear direction and guidance.

1985. EMERGENCY DRILL TRAINING MODULES. Emergency drill training modules provide an opportunity for F/A's to gain experience in the performance of emergency procedures with the actual operation of emergency or safety equipment. Emergency drill training consists of an integration of emergency equipment, emergency situation, and aircraft-specific training. These drills can be taught as either general to all aircraft or as aircraft-specific. For example, if all aircraft in an operator's fleet are equipped with the same type of portable oxygen bottle, the emergency drill would be taught as "general" to all aircraft. If, however, the aircraft in an operator's fleet are equipped with various types of portable oxygen bottles, the emergency drill would be taught as "aircraft-specific." The sequence of emergency drill training should be adjusted according to the complexity of the operator's type and number of aircraft, training mock-ups, and other training devices. For certain emergency drills it is appropriate to sequence emergency drill training after aircraft-specific training. For example, emergency drill training on emergency exits is more effective after training on the functions and controls of the emergency exits for specific aircraft. Emergency drill training is the performance and demonstration phase of emergency training. The objective of this training is to train each F/A to proficiency by reinforcing the concepts developed in the instruction phase of emergency training. The drills require the use of the specific type of emergency equipment as the equipment that is installed on the operator's aircraft; the equipment must have the identical dimensions, weight, forces, and specifications. Each of the drills should be as realistic as possible. For example, if artificial smoke is not used in an emergency evacuation drill, attempts should be made to simulate darkened conditions.

A. Training Criteria. Emergency drill training should be developed to ensure that F/A's obtain proficiency in emergency situations and have the ability to do the following:

- Correctly preflight and prepare emergency/safety equipment for each type of aircraft (when part of assigned duties)
- Identify the type of emergency and correctly utilize the appropriate emergency equipment
- Exercise good judgment in assessing an emergency situation
- Implement the appropriate emergency procedures and to coordinate actions and signals with other crewmembers
- Operate emergency/safety equipment for each type of aircraft
- Communicate effectively with crewmembers and passengers in an emergency situation

B. Training Module Content. The following are examples of training modules for the emergency equipment subject area. These examples of training modules encompass different types of operations and may not be applicable to an operator's specific type of operation. It should be noted that there are elements and events contained in these training modules which are not specified by the FAR but which are intended to provide POI's with further examples for consideration when evaluating training module content. These are examples only, and it is not intended that these examples indicate the only acceptable methods, sequence of instructional delivery, subject titles, or amount of detail.

1987. EMERGENCY DRILLS.

A. Onetime Emergency Drill Requirements. The following emergency drills are required to be accomplished at least one time during initial new-hire training (for the onetime emergency drill requirements of transition training see section 5 of this chapter). Included with each emergency drill are recommended elements or events that F/A's should be able to demonstrate satisfactorily.

(1) *PBE Firefighting Drill.* During a PBE firefighting drill, the student is required to fight an "actual" fire by actually discharging a fire extinguisher charged with the appropriate fire retardant agent while wearing PBE. PBE must be worn while fighting the actual fire. The following recommended elements and events apply to fighting the fire:

- Approach to Fire/Smoke: Ability to locate source of fire or smoke
- Crew Coordination: Ability to implement procedures for effective crew coordination and

communication, including notification of flight crewmembers about fire situation

- Donning and Activating PBE: Ability to maneuver in limited space with reduced visibility and to effectively use the aircraft's communication system
- Selection of Appropriate Fire Extinguisher: Ability to identify class of fire; to select the appropriate extinguisher; to properly remove extinguisher from securing device
- Actual Discharge of Fire Extinguisher on Fire: Ability to prepare extinguisher for use; to operate and discharge extinguisher properly; to utilize correct firefighting techniques for type of fire
- Fire Saturation: Ability to completely extinguish fire

(2) *Emergency Evacuation Drill.* During an emergency evacuation drill, each student is required to egress the aircraft or approved training device using at least one type of installed emergency evacuation slide.

- Prior to Impact: Ability to recognize and evaluate emergency; to assume appropriate protective position; to command passengers to assume protective position
- After Impact: Ability to implement crew coordination procedures; to release seatbelt; to ensure activation of emergency lights; to assess aircraft conditions; to initiate evacuation (dependent on signal or decision); to command passengers to release seatbelts and evacuate; to assess exit and redirect, if necessary; to open exit, including deploying slides and commanding helpers to assist; to command passengers to evacuate at exit and run away from aircraft
- Actual Exit on Emergency Evacuation Slide: Ability to correctly jump onto slide; to maintain correct body position while sliding; to land on feet and run away from aircraft
- Special Sliding Techniques: Awareness of methods for assisting special need passengers, such as handicapped, elderly, and persons in a state of panic

B. Additional Emergency Drill Requirements. The following emergency drills must be accomplished by students during initial new-hire and initial equipment training, and once every 24 calendar months during recurrent training. Included with each emergency drill are recommended elements or events that F/A's should be able to demonstrate satisfactorily.

(1) *Emergency Exit Drill.* During an emergency exit drill, students must operate each type of emergency exit in the normal and emergency modes, including the actions and forces required for deployment of the emergency evacuation slides.

- Preflight Exit: Ability to correctly preflight each type of emergency exit and evacuation slide or slideraft (if part of F/A's assigned duties)
- Actual Disarming and Opening of Each Type of Door Exit in Normal Mode: Ability to open exit properly by disarming door either manually or automatically; to verify girt bar disengagement; to assume correct body position; to use door controls correctly; to secure exit in open and locked position; to secure safety strap
- Actual Closing of Each Type of Door Exit in Normal Mode: Ability to close exit properly by removing safety strap (if installed); to release locking mechanism; to assume correct body position; to use door controls correctly; to secure exit in closed and locked position
- Actual Arming of Each Type of Door Exit in Emergency Mode: Ability to arm exit properly by checking if threshold is free of debris; to arm door either manually or automatically; to verify girt bar engagement
- Actual Opening of Each Type of Door Exit in Emergency Mode: Ability to open exit properly by assuming correct body/protective position; to use door controls correctly; to ensure that door is in open and locked position; to use manual slide inflation system to accomplish or ensure slide or slideraft inflation
- Actual Opening of Each Type of Window Exit: Ability to open exit properly by assuming correct body/protective position; to use controls correctly; to place window safely; to remove escape rope and position for use

(2) *Hand Fire Extinguisher Drill.* During a hand fire extinguisher drill, students must operate and discharge each type of installed hand fire extinguisher (such as Halon 1211, water, carbon dioxide, and dry chemical fire extinguishers). Fighting an actual or a simulated fire is not necessary during this drill.

- Preflight: Ability to correctly preflight each type of hand fire extinguisher (if part of F/A's assigned duties)
- Operation: Ability to correctly operate each type of hand fire extinguisher and to implement appropriate firefighting procedures; to

locate source of fire or smoke and identify class of fire; to select appropriate extinguisher and remove from securing device; to prepare extinguisher for use; to actually operate and discharge extinguisher; to utilize correct fire-fighting techniques for type of fire

NOTE: The discharge of Halon extinguishing agents during firefighting drills is not appropriate unless a training facility is used that is specifically designed to prevent harm to the environment from the discharged Halon. When such facilities are not used, other fire extinguishing agents that are not damaging to the environment should be used during the drills.

- Crew Coordination: Ability to implement procedures for effective crew coordination and communication, including notification of flight crewmembers about the type of fire situation

(3) *Emergency Oxygen System Drill.* During an emergency oxygen system drill, each student must operate each type of emergency oxygen system, including PBE.

- Preflight and Operation of Portable Oxygen Devices: Ability to correctly preflight (if part of F/A's assigned duties) and actually operate portable oxygen bottles, including masks and tubing; ability to preflight and verbally demonstrate operation of chemical oxygen generators, including procedures for administering oxygen
- Administering Oxygen from Portable Oxygen Bottles: Ability to properly remove from securing device; to prepare for use; to operate oxygen device properly, including donning and activation; to administer oxygen to self, passengers, and to those persons with special oxygen needs; to utilize proper procedures for effective crew coordination and communication
- Preflight and Operation of PBE: Ability to correctly preflight (if required) and properly put on equipment; to actually activate equipment and maneuver in limited space with reduced visibility; to utilize the aircraft's communication system for effective crew coordination

NOTE: Several operators equip their aircraft with approved PBE units that have approved storage pouches fastened with two metal staples at one end. However, considerations of practicality and cost compel operators to use a less durable storage pouch for training purposes, one that lacks the staple fasteners. As a result, pilots and F/A's have been surprised that opening the pouch furnished on board requires more force than opening the training pouch. POI's should require crewmember training that includes the appropriate procedures for operating PBE. In those cases where pouches with staples are used for storage of the PBE unit, special emphasis in training should highlight the difference between the training pouch and the onboard pouch. The training pouch may be easy to open, but the approved, onboard pouch may require as much as 28 pounds of force to overcome the 2 staple fasteners.

- Utilization of Aircraft Oxygen System: Ability to manually open each type of oxygen mask compartment and deploy oxygen masks; to identify compartments with extra oxygen masks; to implement immediate action decompression procedures; to reset

(4) *Flotation Device Drill.* During a flotation device drill, the student must put on, use, and inflate (as applicable) each type of individual flotation device.

- Preflight: Ability to correctly preflight (if part of F/A's assigned duties) each type of individual flotation device
- Donning and Inflating Life Vests: Ability to locate and remove from packaging; to properly put on and inflate (automatically and manually); to activate and deactivate locator light; to put on a small child or infant; to instruct children, nonswimmers, handicapped, and elderly on how to use and when to inflate; to demonstrate swimming techniques with a life vest
- Flotation Seat Cushions: Ability to remove from seat and properly use; to demonstrate swimming techniques using a seat cushion

(5) *Ditching Drill (if applicable).* During a ditching drill, students must perform the "prior to impact" and "after impact" procedures for a ditching, as appropriate to the specific operator's type of operation.

- Crew Coordination: Ability to implement crew coordination procedures, including briefing with captain to obtain pertinent ditching information and briefing F/A's; to coordinate timeframe for cabin and passenger preparation
- Passenger Briefing: Ability to adequately brief passengers on ditching procedures, including information on the removal and stowage of restrictive personal articles; removal, donning, inflation of life vests; positioning of seats and tray tables; stowage of carry-on baggage; securing and release of seatbelts; appropriate

brace positions; location of exits; location and boarding of rafts; helper briefings

- Passenger and Cabin Preparation: Ability to ensure that all passenger briefing procedures are implemented properly; to ensure that cabin is prepared, including the securing of carry-on baggage, lavatories, and galleys
- Launching of Sliderafts or Rafts: Ability to assess conditions; to demonstrate how to properly deploy and inflate sliderafts; to remove, position, attach to aircraft, and inflate rafts; to use escape ropes at overwing exits; to command helpers to assist; to use slides and seat cushions as flotation devices; to remove appropriate emergency equipment from aircraft
- Boarding of Passengers and Crew into Slideraft or Raft: Ability to command passengers to exit aircraft, to inflate life vests, to board rafts properly; to initiate raft management procedures, including disconnecting rafts from aircraft, applying immediate first aid, rescuing persons in water, salvaging floating rations and equipment, deploying sea anchor, tying rafts together, activating or ensuring emergency locator transmitter in operation; to initiate basic survival procedures, including removing and utilizing survival kit items, repairing and maintaining raft, ensuring protection from exposure, erecting canopy, communicating location, providing continued first aid, providing sustenance
- Use of Life Lines: Ability to use heaving line to rescue persons in water; to tie sliderafts or rafts together; to use life line on edge of slideraft or raft as a handhold and to secure survival kit items

(6) *Liferaft Removal and Inflation Drill (if applicable).* During a liferaft removal and inflation drill, students must observe the removal of a liferaft from the aircraft or training device, as well as the inflation of a liferaft.

- Raft Removal: Removal of raft from raft compartment, including using correct method of handling raft; positioning raft at exit; removing raft lanyard; securely attaching raft lanyard to aircraft interior before raft launching; commanding helpers to assist
- Raft Launching and Inflation: Ensuring that exit is open and usable; launching raft into water and inflating raft; commanding passengers to evacuate at exit and board raft; detaching raft from aircraft; commanding helpers to assist; initiating raft management and basic survival procedures
- Raft Launching at Window Exits: Removing and positioning raft from raft compartment to window exit; removing raft lanyard; securely attaching raft lanyard to aircraft interior; ensuring that window exit is open and usable; removing escape rope and attaching to fitting on wing; carrying raft onto wing and launching raft off leading edge of wing into water; inflating raft; commanding passengers to evacuate at window exit, to walk onto wing holding escape rope, and to board raft; detaching raft from aircraft; commanding helpers to assist

(7) *Slideraft Transfer Drill.* During a slideraft transfer drill, students must observe the transfer of each type of slideraft pack from an unusable door to a usable door.

- Disconnecting Slideraft at Unusable Door: Crew coordination procedures, assessing conditions to determine usable door, redirecting passengers to usable slideraft, completing specific steps for slideraft disconnection at unusable door
- Slideraft Installation and Deployment at Usable Door: Positioning slideraft pack at usable door, completing specific steps for slideraft installation at usable door

(8) *Slide or Slideraft Deployment, Inflation, and Detachment Drill.* During a slide or slideraft deployment, inflation, and detachment drill, students must observe the deployment, inflation, and detachment of the slide or slideraft pack from the aircraft or training device.

- Slides With Quick-Release Handle: Engaging slide girt bar in floor brackets; opening of door and verification of slide deployment; inflating slide either manually or automatically; disconnecting slide from aircraft for use as a flotation device
- Slides Without Quick-Release Handle: Engaging slide girt bar in floor brackets; opening door and verifying slide deployment; disconnecting slide from aircraft; inflating slide for use as a flotation device
- Sliderafts: Arming sliderafts for automatic inflation; opening door and verifying inflation; disconnecting slideraft from the aircraft

(9) *Emergency Evacuation Slide Drill.* During an emergency evacuation slide drill, students must observe the deployment and inflation of an evacuation slide, including participants egressing from the cabin via the evacuation slide.

- Opening Exit: Opening armed exit with slide or slideraft deployment and inflation
- Evacuation of Aircraft: Commanding the evacuation; having participants egress from aircraft via the evacuation slide and run away to a safe distance

NOTE: In drills No. 6, 7, 8, and 9, F/A's are not required to actually remove and inflate liferafts or to deploy, inflate, detach, or transfer slides or sliderafts. FAR 121.417(c)(2)(ii), however, requires that these drills at least be observed. FAR 121.417(f) defines "perform" and "observed." "Perform" is defined as the accomplishment of "a prescribed emergency drill using established procedures that stress the skill of those persons involved in the drill." "Observe" is defined as watching "without participating actively in the drill." When evaluating an "observed" drill, either with audiovisual aids or with participants performing the drill, the inspector must determine whether it adequately conveys a clear understanding of each of the steps involved to perform a required function.

1989. ADAPTATION OF GENERAL EMERGENCY TRAINING CURRICULUM SEGMENTS TO THE VARIOUS CATEGORIES OF TRAINING. The general emergency training curriculum segment is required in the following categories of training: initial new-hire, recurrent, and requalification. When determining if general emergency training curriculum segments are appropriately adapted to the different categories of training, POI's should use table 3.14.4.1.

A. Initial New-Hire Category of Training. Operators must develop and obtain approval of a general emergency training curriculum segment for the initial new-hire category of training. An operator who operates both reciprocating-powered and turbojet-powered aircraft may be required to develop separate general emergency curriculum segments for incorporation into the initial new-hire category of training appropriate to these types of aircraft.

B. Transition Category of Training. There is requirement for a separate general emergency curriculum segment for the transition category of training. For this category of training, F/A's will have previously received the appropriate general emergency training during initial new-hire training. Aircraft-specific emergency training, however, must be included in the aircraft ground training segment of a transition curriculum. Aircraft-specific emergency training may require elements that are in a general emergency training curriculum segment. For example, an operator may not operate an aircraft equipped with escape slides. If the operator subsequently adds an aircraft so equipped, training on slides must be included in transition training.

C. Recurrent Category of Training.

(1) *FAR Part 121.* FAR Part 121 operators must develop and obtain approval for a separate general emergency training curriculum segment for the recurrent category of training. Usually it will be appropriate to have two general emergency curriculum segments, one which reflects a 12-month cycle of emergency equipment and emergency situation training, and another which reflects a 24-month cycle of emergency drill training. It is acceptable, however, to incorporate the emergency drill "hands-on" training into a single curriculum segment, provided the segment contains a requirement that F/A's must receive the emergency drill training at least once every 24 months.

(2) *FAR Part 135.* FAR Part 135 operators should develop and obtain approval for a separate general emergency training curriculum segment for the recurrent category of training. The recurrent general emergency curriculum segment must contain "hands-on" training in each annual cycle.

D. Requalification Category of Training--FAR Parts 121 and 135. The determination of whether a general emergency curriculum segment is appropriate for the requalification category of training depends on the length of time an F/A has been unqualified. In general, F/A's become unqualified for not completing recurrent training for more than 1 year.

1991. CURRICULUM SEGMENT COMPLETION REQUIREMENTS. Completion of the curriculum segment must be certified by an instructor or a supervisor indicating that the student has successfully completed the course. This certification is usually based on the satisfactory evaluation of a student's performance. With some training methods, such as computer-based instruction (CBI), the certification may be based on student progress checks administered during the course.

1993. EVALUATION OF TRAINING HOURS.

A. FAR Parts 121 and 135 do not specify a minimum number of training hours for general emergency training curriculum segments. When approving these curriculum segments, the FAA must consider the complexity of the type of operation to be conducted and the complexity of the aircraft to be used. The following table provides guidance and direction for POIs when approving general emergency training curriculum segments. The table provides "national norms" for the initial new-hire general emergency training hours. The purpose of having established national norms is to assist the POI when evaluating

proposed programs for new operators or when evaluating proposed programs introducing new aircraft by existing operators. For a complex type of operation the training hours may need to exceed the national norm, while for a less complex type of operation the training hours below the national norm may be acceptable. National norms have not been established for recurrent general emergency training.

B. Table 3.14.4.1. lists three general levels of operational complexity. The basic level of complexity for the initial new-hire training category is considered to be "land operations." The national norm for land operations is 14 hours for the general emergency training curriculum segment, divided into 10 hours for emergency equipment/ situations and the remaining 4 hours for emergency drills. The national norm for "extended overwater operations" is an additional 7 hours divided into 4 hours for emergency equipment/situations and the remaining 3 hours for emergency drills. The national norm for "operations above 25,000 feet" is an additional 3 hours, divided into 2 hours for emergency equipment/situations and the remaining 1 hour for emergency drills. For an operator conducting all three operational complexities, the national norm is a total of 24 hours for the general emergency training curriculum segment.

1995. EVALUATION OF CABIN AND EXIT MOCKUPS. Hands-on emergency drill training for items such as emergency exits and passenger oxygen systems should be conducted in either a static aircraft, an approved cabin mock-up training device, or an approved exit mock-up training device. Cabin and exit mock-up training devices should be representative of a full-scale section of an aircraft. Cabin mock-ups should include operational doors, window exits, slides, rafts, and other equipment used in emergency drill training. Cabin or exit mock-up training devices shall not be approved unless they have been evaluated by an FAA inspector and determined to be adequate. Generally, cabin mock-ups are acceptable if they are representative of the operator's aircraft with the appropriate equipment installed, and they are full-scale in cross section. Generally, exit mock-ups are acceptable if the forces required to open them closely duplicate normal and emergency conditions with the slide or slideraft installed, and if the mechanisms and instructions required to operate them are representative of the operator's aircraft.

1997. EVALUATION OF F/A GENERAL EMERGENCY TRAINING CURRICULUM SEGMENT OUTLINE FOR INITIAL APPROVAL. When evaluating a general emergency training curriculum segment outline for initial approval, inspectors must determine whether the training modules contain the information required for F/A's to perform emergency duties and procedures without supervision. Inspectors should use the job aid in this section when evaluating the proposed curriculum segment outline (see figure 3.14.4.1.).

1999. F/A GENERAL EMERGENCY CUR-RICULUM SEGMENT JOB AID.

A. The F/A General Emergency Curriculum Segment Job Aid (see figure 3.14.4.1.) is provided to assist the inspector when evaluating this curriculum segment. This job aid covers the three distinct subject areas of general emergency training: "emergency equipment" training, "emergency situation" training, and "emergency drill" training. The job aid is intended to assist inspectors during the evaluation of individual general emergency training curriculum segment modules.

B. When using the job aid, an inspector should make a side-by-side comparison of the operator's proposal to make the following determinations:

- Whether the training modules provide for training on the required elements and events in terms of F/ A duties and procedures
- Whether sufficient training module elements and events are outlined to ensure that the appropriate depth and scope of the material will be presented

C. The job aid is organized with training subjects listed vertically in the left column and evaluation criteria listed horizontally across the top. Inspectors may use the spaces within the matrix for items such as notes, comments, dates, or checkmarks. There are also blank columns and rows on the job aid for inspectors to include additional training modules or evaluation criteria.

2000.-2010. RESERVED.